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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,282	11/02/2001	James R. Easterday	KOL-10-5563	2457

27422 7590 11/20/2003

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EXAMINER

OLTMANS, ANDREW L

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,282

Applicant(s)

EASTERDAY ET AL.

Examiner

Andrew L Oltmans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 and 18 is/are allowed.
- 6) ☒ Claim(s) 1-12, 14 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s) _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Beyer et al. 4,019,928

2. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Beyer et al. 4,019,928 (Beyer; cited on IDS filed April 29, 2003).

Beyer teaches the claimed composition for treating steel parts wherein the composition comprises the claimed alkali metal cyanates and alkali (i.e. sodium and potassium) carbonate, including a range that encompasses the range of cyanate instantly claimed, as recited in claims 1-5 (col 2):

It has surprisingly turned out that there can be nitrified with good success workpieces of iron and steel with all carbon contents occurring in practice in salt melts low in cyanide or more preferably free from cyanide if these salt melts consist essentially of potassium cyanate, sodium cyanate, potassium carbonate and sodium carbonate and, most preferably, contain 25-57% cyanate calculated as the cyanate ion. Optionally, there can be present 0 to 30% of alkali metal chlorides.

Beyer teaches the claimed ratio of potassium to sodium recited in instant claim 6 (col 2):

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There are very suited for the nitriding process of the
45 invention salt baths which contain a high proportion of
potassium salts compared to sodium salts, whereby the
advantageous working range for the sodium-potassium
atomic ratio is from 0 to 1.5:1. However, especially
preferred are baths with a sodium-potassium atomic
50 ratio of 0 to 0.5:1.

The claims do not distinguish over the teachings of Beyer.

With respect to the limitations of intended use involving stainless steel and the treating temperatures in the preamble, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

With respect to the property limitation "wherein the composition is molten and homogenous at temperature between 750°F and 950°F" (claim 1), the property is inherent, as acknowledged by applicant in the response filed September 17, 2003, page 5, 1st line of 2nd paragraph. It is noted that the limitation "wherein the composition is molten and homogenous at temperature between 750°F and 950°F" is merely a property of composition and does not limit the composition to a particular temperature.

Gaucher et al. 3,912,547

3. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Gaucher et al. 3,912,547 (Gaucher; cited on IDS filed).

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Gaucher teaches an embodiment of the claimed composition for treating steel parts wherein the composition comprises the claimed alkali metal cyanates and alkali (i.e. sodium and potassium) carbonate, wherein the cyanate concentration and alkali metal ratio fall within the claimed range of claims 1-6. (see e.g. Example V: col 6):

EXAMPLE V

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The procedure is the same as for Example III, but the bath contained the following ions:

10	Li ⁺	5.5%
	K ⁺	17.5%
	Na ⁺	13.3%
	CO ₃ ⁻⁻	16.1%
	CNO ⁻	46.9%
	S ₂ O ₃ ⁻⁻	0.7%

and

(col 2):

40 The bath of molten salts according to the invention is further characterized in that the ratio by weight of Li⁺ to Na⁺ is comprised between 0.15 and 0.50 and the ratio by weight of Li⁺ to K⁺ is comprised between 0.10 and 0.35, the content by weight of anion CNO⁻ in the bath being comprised between 20 and 65%, while the
45 content by weight of anion CO₃⁻⁻ of the bath is comprised between 1 and 35%.

The claims do not distinguish over the teachings of Gaucher.

With respect to the property limitation "wherein the composition is molten and homogenous at temperature between 750°F and 950°F" (claim 1), the property is inherent, as acknowledged by applicant in the response filed September 17, 2003, page 5, 1st line of 2nd

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paragraph. It is noted that the limitation "wherein the composition is molten and homogenous at temperature between 750°F and 950°F" is merely a property of composition and does not limit the composition to a particular temperature.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Beyer et al. and Gaucher et al. 3,912,547 in view of Blas et al. 4,184,899 and Caubet

3,321,338

5. Claims 7-12, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beyer et al. 4,019,928 Gaucher et al. 3,912,547 (Beyer and Gaucher) in view of Blas et al. 4,184,899 Caubet 3,321,338 (Blas and Caubet).

Beyer and Gaucher teach the composition claimed in the method steps as set forth above in paragraphs 2 and 3. Beyer teaches that the process of nitriding with a fused bath takes place on ferrous metals (e.g. steel), wherein the temperature is from 500-650°C (932-1202 °F) (col 2, lines 59-63), which overlaps the temperature range recited in claim 7 and 17. Gaucher teaches that the process of nitriding with a fused bath takes place on ferrous metals (e.g. steel), wherein the temperature is from 450-600°C (842-1112 °F) (col 1, lines 5-10 and col 4, lines 55-60), which overlaps the temperature range recited in claim 7 and 17.

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Beyer and Gaucher fail to meet all the limitations of the instant claims in that Beyer and Gaucher do not explicitly teach the exact temperature range or the workpiece as stainless steel.

Blas and Caubet teach that stainless steel, including austenitic stainless steel can be nitrided by using a fused bath containing cyanate and alkali carbonate in order to increase their wear resistance (Blas: col 1, lines 7-9 and 15-16, col2, lines 20-28 and Table 1) (Caubet: col 1, lines 26-35 and 50-57)

One of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the temperature of the fused bath at immersion taught by the reference overlaps that of the instant claims, In re Peterson, 65 USPQ2d 1379, In re Malagari, 182 USPQ 549, and MPEP 2144.05.

With respect to the use of stainless steel, one of ordinary skill in the art would have found the invention to be obvious because one of ordinary skill in the art would have found that the use of ferrous products, including steel taught by Beyer and Gaucher, are a genus to stainless steel, wherein one of ordinary skill in the art would have been motivated to use stainless steel because treating stainless steel with fused baths of cyanate and alkali carbonate is well-known in the art, as taught in Blas and Caubet, and provides stainless steel having increased wear resistance.

Allowable Subject Matter

6. Claim 16 and 18 are allowed.

A primary reason for the allowance of claims 16 and 18 is that the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method on stainless steel

including the particular treatment time (claim 18), the temperature range (claims 16 and 18) and the particular stainless steel (claim 16).

Response to Arguments

7. Applicant's arguments filed September 17, 2003 have been fully considered but they are not persuasive. Claims 1-12, 14 and 16-18 remain pending in this application. The claims have been rejected under the same statutory sections as in the previous Office Action. However, the grounds for rejection have been amended to reflect the amendments made by applicant. In view of the fact that the new grounds for rejection are in response to applicant's amendment, this action is FINAL.

8. With respect to applicant's addition of the limitation, "wherein the composition is molten and homogenous at temperature between 750°F and 950°F" (claim 1), the property is inherent, as acknowledged by applicant in the response filed September 17, 2003, page 5, 1st line of 2nd paragraph and does not patentably distinguish over the teachings of either Beyer or Gaucher.

9. The applicant argues that the ranges taught by Beyer and Gaucher are broader than the ranges claimed and does not anticipate the claimed ranges. It is noted that, in addition to the broad range disclosed for cyanates, specific examples with sufficient specificity anticipating the claimed ranges are taught in both Beyer and Gaucher (see e.g. Beyer: col 5, lines 4-6 and col 5, lines 20-24; Gaucher: Example V, col 6 and Example VI, col 6), see MPEP 2131.03. Therefore, applicant's argument is not found persuasive.

10. It is noted that the composition (claims 1-6) is anticipated; therefore, evidence of non-obviousness is not persuasive.

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11. The examiner acknowledges the typographical error in the conversion of °C to °F. As pointed out by applicant the correct conversions are “500-650°C (932-1202 °F)” and “450-600°C (842-1112 °F)”, respectively. The position taken by the examiner, namely that the temperature ranges overlap is correct and is unaffected by the examiner’s error.

12. With respect to applicant’s argument that the temperature ranges claimed produce new and unexpected results with respect to the method claims (claims 7-12, 14 and 17) (see paragraph bridging pages 6-7 and 1st and 2nd paragraph on page 7), the argument is not persuasive. The data referred to in the specification is unclear and does not provide the conclusion that the claimed temperatures or compositions provide improved results, such as “corrosion resistance”. For example, the temperature range recited in the claims includes 950°F, wherein the results shown in Figure 1 for 950°C does not indicate improved results. Further, it is unclear what compositions are being tested to produce the results reproduced in the Figures. For example, Figure 1 appears to be examples tabulated in Table I (see specification page 9, lines 8-10). The compositions set forth in Table I (and therefore the test data in Figure 1), are not clear (specification page 8):

“The composition of the salt bath for those specimens treated at 750 °F to 950 °F was a salt bath according to the present invention, including an alkali metal cyanate with 48% cyanate ion and at least 1% carbonate ion with the potassium to sodium ratio being 3.9 to 1.0. Those specimens that were treated in conventional salts for salt bath nitriding had about 35% cyanate ion, with the potassium sodium ratio being 3.9 to 1.0 and at least about 1% carbonate.”

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It is unclear what examples are according the invention and which examples are "conventional salts". Further it is unclear what conditions are included in the "conventional salts". Further, even if the examples are presumed to be delineated by temperatures within 750 °F to 950 °F and temperatures outside the temperature range (noting the above discussion of data for 950 °F), the comparison is not probative because the compositions of the comparative examples and the inventive examples are different. For all of the above reasons, the arguments and citation of data are not found persuasive.

13. With respect to the incorporation of the subject matter of claim 13 into claim 7, the rejection previously applied to claims 13-14 and 17 is now applicable to claims 7-12, 14 and 17 (see paragraph 5, above).

14. In view of all of the above, the arguments presented by applicant are not persuasive.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L Oltmans whose telephone number is 703-308-2594.

The examiner can normally be reached from 7:00 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Andrew L. Oltmans
Patent Examiner
Art Unit 1742

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November 18, 2003